

## 5.0 Comparison of the Environmental Consequences of The Alternatives

This chapter compares and contrasts the effects of the Proposed Action and the Mitigation Alternative, and describes the Agency-preferred alternative. Under the Proposed Action, all resource areas, with the exception of geology, would experience adverse environmental impacts. Six resource areas (land use, soils, vegetation, wildlife, fisheries and socioeconomic) would experience significant impacts and two resource areas (wetlands and socioeconomic) would experience beneficial impacts. All significant impacts and many adverse but not significant impacts would be mitigated to nonsignificant or “no impact” with the implementation of mitigation measures described in the Mitigation Alternative. The No Action Alternative would result in no impacts to visual, recreation, soil, water, wetland, vegetation, wildlife, fish, and infrastructure resources. No-action would adversely affect socioeconomic and land use resources.

### 5.1 Agency-Preferred Alternative

The agency’s preferred alternative is the Mitigation Alternative. The Mitigation Alternative includes all activities described under the Proposed Action and additional mitigation measures described in Section 2.2 and evaluated for impacts to all resources in Chapter 4.0. Most of the measures described in the Mitigation Alternative address concerns raised by state agencies and the public during the scoping process. None of these measures can be required by DEQ, but CES or MPC may request that one or more of the measures be placed in a permit. Once CES or MPC has requested that a mitigation measure in this section be incorporated in a permit, it becomes mandatory and enforceable as part of the permit.

Mitigation measures that would reduce the severity of significant impacts from the Proposed Action to less than significant or beneficial are listed in Table 5-1 under each corresponding significant impact. The remaining mitigation measures described in the Mitigation Alternative in Section 2.0 would further reduce impacts that are adverse but not significant.

Even if the sponsor chooses not to include a mitigation measure in a state permit, the project sponsor may nevertheless implement the mitigation measure. However, this would not be a permit requirement. The project sponsor could choose to work with another appropriate agency or entity to perform the action. If a mitigation measure is not implemented, impacts from the Proposed Action that would have been mitigated would remain. Mitigation measures described under this alternative that are selected by the project sponsors will be identified in DEQ’s Record of Decision.

### 5.2 Comparison of Alternatives

Table 5-1 provides a summary of impact severity for the Proposed Action and the Mitigation Alternative. Mitigation measures that affect impact severity for significant impacts from the Proposed Action to be less than significant in the Mitigation Alternative are also included in Table

5-1 below each significant impact. Impact categories listed in this chapter are simplified from impact descriptions provided in Chapter 4. For a detailed description of impacts, refer to the appropriate resource section in Chapter 4. Impact categories in Table 5-1 are: Adverse but not significant (A), Significantly adverse (S), Beneficial (B), and No impact (N).

**Table 5-1 Comparison Proposed Action and the Mitigation Alternative Impacts**

Action	Impact <sup>1</sup>	Impact Severity <sup>2</sup>	
		Proposed Action	Mitigation Alternative
Land Use, Visuals, Recreation			
Generation plant and pipeline construction	Increase in traffic volume, vehicle noise and dust in the study areas	A	A
Generation plant operation wastewater disposal	Potential loss of value to state land used as a LAD	A	A
Generation plant operation wastewater disposal	Potential increase in revenue from a state land lease	B	B
Generation plant construction and operation	Potential increase in property values for existing homes outside the affected area	B	B
Generation plant construction and operation	Potential decrease in property values for existing homes nearby the proposed generation plant site	A	A
Generation plant construction and operation	Realization of Butte-Silver Bow's land use plans for the Generation Plant site.	B	B
Generation plant construction and operation	Change in landscape by the construction and operation of the generation plant and associated transmission structures	A	A
Generation plant operation	Generation plant vapor plume visibility to residences, travelers on Interstate Highways 15 and 90, and recreationists using the Continental Divide National Scenic Trail	A	A
Generation plant operation	Intensity and flashing operation of strobe lights on the exhaust stacks would impact nearby residences	A	A
Pipeline construction and operation	Potential conflict with ARCO Warm Springs Pond Management Plan	A	N

Action	Impact <sup>1</sup>	Impact Severity <sup>2</sup>	
		Proposed Action	Mitigation Alternative
Pipeline construction	Adverse changes to landscape through vegetation removal, earthwork and grading, staging and laydown areas from highway and road viewpoints	A	A
Pipeline construction	Short-term disruption and displacement of dispersed recreation activities	A	A
Pipeline construction	Disruption and displacement of dispersed fishing use for approximately 1 to 2 weeks due to trenching of rivers and streams	A	A
Pipeline construction	Impairment of recreational fishery on the Dearborn and Missouri Rivers	S	A or N
	Mitigation: Section 2.2.2.2 Dry or trenchless crossing of the Dearborn River; Whirling disease mitigation		
<b>Soil Resources</b>		A	A
Generation Plant –Construction	Increased soil erosion and offsite sedimentation	A	A
	Soil compaction and rutting	A	A
	Decreased reclamation potential	A	A
Generation Plant –LAD Operation	Increased soil erosion and offsite sedimentation	A	A
	Soil compaction and rutting	A	A
	Decreased reclamation potential	A	A
Pipeline – Construction	Increased soil erosion and offsite sedimentation	A	A
	Soil compaction and rutting	A	A
	Decreased reclamation potential	S	A
	Mitigation: Section 2.2.2.3: Top soil salvage, Multiple horizon soil salvage, Soil compaction Minimization, 100-year floodplain; Contractor compliance monitoring.		
Pipeline – Operation (maintenance spills)	Contaminated soils and inhibited plant growth	A	N
<b>Water Resources</b>			
Process water diversion for generation plant operations	Reduction of instream flow in Warm Springs Creek	A	N
Process wastewater discharge		A	A
Generation Plant Operations	Silver Bow Creek water quality impairment		

Action	Impact <sup>1</sup>	Impact Severity <sup>2</sup>	
		Proposed Action	Mitigation Alternative
Process wastewater discharge for Generation Plant Operations	Sheep Gulch surface water quality impairment	A	A
Process wastewater discharge for Generation Plant Operations	Sheep Gulch groundwater quality impairment	A	A
Stream crossings timing and duration Gas Pipeline Construction	Change in beneficial use	A	A
Gas Pipeline Construction	Erosion and stream sedimentation levels	A	N
Hydrostatic water testing Gas Pipeline Construction	Alteration to stream flow	A	A
Release of hydrostatic testing water Pipeline Construction	Alternation of instream sedimentation	A	N
Pipeline Construction	Groundwater flow or quality impairment	A	A
	Stream crossing surface water quality impairment	A	N
	Pipeline exposure from migrating stream channel	A	N
<b>Wetland Resources</b>			
Generation Plant –LAD Operation	Alterations to wetland hydrology, soils, or vegetation	B	B
Generation Plant –LAD Operation	Alterations to wetland functions and values	B	B
Pipeline Construction	Alterations to wetland hydrology, soils, vegetation	A	A
	Alterations to wetland functions and values	A	A
Pipeline Operation	Alterations to wetland hydrology, soils, vegetation	A	A
	Alterations to wetland functions and values	A	A
<b>Vegetation Resources</b>			
Generation Plant construction and operation	Long-term loss of vegetation cover and production on approximately 21.8 acres at the generation plant, approximately 100-200 acres at the upland sprinkler system wastewater disposal site, and approximately 100 acres impacted by salt	A	A

Action	Impact <sup>1</sup>	Impact Severity <sup>2</sup>	
		Proposed Action	Mitigation Alternative
	deposition from cooling stacks.		
Generation plant construction and operation	New noxious weed infestations	A	A
	Enlarged noxious weed infestations	A	A
Pipeline construction	Long-term loss of vegetation cover and production on approximately 953 acres over 4 pipeline segments.	S	A
	Mitigation: Measures described under Section 2.2.2.3.		
Pipeline construction	Special-status plant population loss	A	A
Pipeline construction	Degrade shrub, forested, or high-condition/unique wetland/riparian areas	A	A
Pipeline construction	New noxious weed infestations	A	A
Pipeline construction	Enlarged noxious weed infestations	A	A
<b>Wildlife Resources</b>			
Generation Plant construction and operation	Direct mortality of special-status species (Preble's Shrew)	A	A
Generation Plant construction and operation	Long-term (greater than three years) loss of wildlife habitat.	A	A
Generation Plant construction and operation	Temporary (construction) and short-term (less than three-years) loss of wildlife habitat or disruption of wildlife behavior that may result in increased mortality or lowered reproductive success	A	A
Pipeline construction	Direct mortality of special-status species	A	A
Pipeline construction	Long-term (greater than three-years) inability of wildlife to use biologically important habitat.	A	A
Pipeline construction	Long-term (greater than three years) loss of wildlife habitat.	A	A
Pipeline construction	Short-term (less than three-years) loss of wildlife habitat that may result in increased mortality or lowered reproductive success.	A	A
Pipeline construction	Temporary (construction) loss of wildlife habitat or disruption of wildlife behavior that may result in increased mortality or lowered reproductive success.	S	A
	Mitigation: Section 2.2.2.5 consult with FWP to develop timing restrictions to avoid constructing in big game winter range during critical periods.		

Action	Impact <sup>1</sup>	Impact Severity <sup>2</sup>	
		Proposed Action	Mitigation Alternative
Fish Resources			
Generation plant construction and operation	Chronic (likely to occur on an annual basis) inability of fish to use biologically important habitat (e.g. spawning or migrating).	A	B
Generation plant construction and operation	Chronic (likely to occur on an annual basis) loss of existing fish habitat that may result in increased mortality or lowered reproductive success.	A	B
Generation plant construction and operation	Occasional (occurring sporadically within a year or among years) loss of fish habitat that may result in increased mortality or lowered reproductive success.	S	B
	Mitigation: Section 2.2.2.1 Maintenance of adequate instream flows in Warm Springs Creek		
Pipeline construction (Silver Creek)	Direct mortality of special-status species or of substantial numbers of fish in Silver Creek.	S	A or N
	Mitigation: Section 2.2.2.2 Dry or trenchless crossing of Silver Creek		
	Mitigation: Section 2.2.2.2 appropriate disposal of contaminated fill excavated at Silver Creek crossing		
Pipeline construction (Dearborn River and Sun River)	Short term (less than two years) loss of fish habitat that may result in increased mortality or lowered reproductive success	S	A or N
	Mitigation: Section 2.2.2.2 Dry or trenchless crossing (Dearborn River); Dry or trenchless crossing (Sun River)		
	Mitigation: Section 2.2.2.2 Modify crossing timing windows to those specified by FWP.		
Pipeline construction (backwater Sun River, Spring Creek, backwater Teton River, Jones Creek, Muddy Creek, Big Coulee Creek, Flat Creek)	Short term (less than two years) loss of fish habitat that may result in increased mortality or lowered reproductive success	A	N
Pipeline construction inflowing streams that support rainbow trout	Risk of introducing Whirling Disease	S	A
	Mitigation: Section 2.2.2.2 Whirling disease mitigation		
	Mitigation: Section 2.2.2.2 Dry or trenchless Dearborn River crossing		

Action	Impact <sup>1</sup>	Impact Severity <sup>2</sup>	
		Proposed Action	Mitigation Alternative
Air			
Generation plant construction	Fugitive emissions – Emissions of PM and PM <sub>10</sub> from vehicle traffic	A	A
Generation Plant operation	Point Sources - Emissions of NO <sub>x</sub> , PM <sub>10</sub> , VOCs, SO <sub>2</sub> , and NH <sub>4</sub> from turbine stacks and cooling towers	A	A
	Deposition of NH <sub>4</sub> , nutrients and nitrogen derived compounds	A	A
	Salt deposition	A	A
	Smog and Greenhouse Gas Emissions	A	A
Morel Tap	Fugitive emissions – Emissions of PM and PM <sub>10</sub> from vehicle traffic and construction of the facility	A	A
Silver City Loop & Mainline #4 Compressor Station	Fugitive emissions – Emissions of PM and PM <sub>10</sub> from vehicle traffic and construction of the facility	A	A
Wolf Creek Loop and Mainline #3 Compressor Station	Fugitive emissions – Emissions of PM and PM <sub>10</sub> from vehicle traffic and construction of the facility	A	A
Mainline #1 Compressor Station	Point Sources - Emissions from the firing of natural gas at the compressor stations of NO <sub>x</sub> , PM <sub>10</sub> , VOCs, and SO <sub>2</sub>	A	A
	Greenhouse gas emissions	A	A
Noise			
Generation Plant-Construction	Temporary annoyance, speech interference, and stress due to increased noise levels at residences.	A	A
Generation Plant-Operation	Annoyance due to increased noise levels at residences.	A	A
Generation Plant-High-pressure steam vent during plant start-up	Temporary annoyance, speech interference and stress due to increase in noise levels at residences.	A	A
Transmission Line-Construction	Temporary annoyance, speech interference, and stress due to increased noise levels at residences.	A	A
Gas Pipeline-Construction	Temporary annoyance, speech interference, and stress due to increased noise levels at residences.	A	A
Gas Pipeline-Operation of compressor stations	Annoyance due to increased noise levels at residences.	A	A

Action	Impact <sup>1</sup>	Impact Severity <sup>2</sup>	
		Proposed Action	Mitigation Alternative
Cultural Resources			
Generation Plant construction	Cutting a portion of historic ditch	A	A
Generation Plant construction	Potential disturbance of prehistoric bison kill	A	A
Generation Plant construction	Transient visual impacts to NRHP-listed sites	A	A
Pipeline construction	Potential disturbance of four prehistoric archeological sits	A	A
Pipeline construction and operation	Visual impacts to two historic districts and two historic sites	A	A
Socioeconomic Resources			
Generation Plant construction and operation	Local employee incomes	B	B
Generation Plant construction	Short term construction job opportunities	B	B
Generation Plant operation	Long term jobs	B	B
Generation Plant and pipeline construction and operation	Local business sales	B	B
Generation Plant and pipeline construction and operation	Government revenue	B	B
Generation Plant construction and operation	Infrastructure demands	A	A
Generation Plant construction	Housing availability	A	A
Generation Plant construction and operation	Property values	B	B
Generation Plant operation	Electric utilities	A	B
Generation Plant and Pipeline operation	MPC gas system	B	B
Pipeline Construction	Trenched crossing of the Dearborn River may impair fishery on the Dearborn and Missouri Rivers	S	A or N
	Mitigation: Section 2.2.2.2 Whirling disease mitigation Mitigation: Section 2.2.2.2 Dry or trenchless Dearborn River crossing		
Infrastructure			
Pipeline construction Pipeline failure Pipeline closure and reclamation	Impediment to the through mobility of a roadway	A	A



Action	Impact <sup>1</sup>	Impact Severity <sup>2</sup>	
		Proposed Action	Mitigation Alternative
Generation Plant construction	Roadway wear	A	A
Generation plant and pipeline construction and operation	Increased risk of explosive hazard and toxic materials release	A	A
Pipeline construction	Risk to workers from bee farms	A	N
<b>Cumulative Effects</b>			
Wastewater discharge to Sheep Gulch combined with ASiMI discharges Generation Plant operations	Water quality impairment	A	A
Combined future ASiMI needs with the proposed project	Reduction in instream flows in Warm Springs Creek impacts to fishery	S	B
	Mitigation: Section 2.2.1.2: Maintenance of instream flows in Warm Springs Creek		
MPC and CES land disturbance activities combined with past, present and future land disturbance activities in the study areas	Spread of noxious weeds due to additional land disturbance activities in the study areas	A	A
	Replacement of non-native plants due to additional land disturbance activities in the study areas	A	A
Generation plant operation combined with planned future generation plant operations	Reduced availability of transmission capacity for additional power generators in Montana	A	A
Generation plant operation combined with planned future generation plant operations	Potential reduction in electricity prices in the event of electricity transmission constraint	B	B

<sup>1</sup>Impact column also contains a reference to the mitigations from the Mitigation Alternative that would reduce significant impacts to less than significant. Mitigation measures referenced in this table are described in Section 2.2 under the Mitigation Alternative.

<sup>2</sup>Impact categories: Adverse but not significant (A), Significantly adverse (S), Beneficial (B), and No impact (N).

